Introduction

The climate crisis can be described as the largest, most complex, and most pressing challenge the global community is facing today. As the effects of climate change are beginning to be felt, conversations about how to tackle such a large issue are becoming more frequent and serious. From plastic cleanups to carbon taxes, discussions about possible solutions are important. However, it will be impossible to truly solve the climate crisis without understanding where exactly the crisis comes from, and the systemic problems that have allowed it to reach the magnitude it has today. One reason it is so difficult to solve is because the concerns raised by natural scientists must be addressed by so many political and economic stakeholders, making climate change a truly interdisciplinary issue. The overlap between political science and economics results in the interdisciplinary field of political economy, which investigates the power relationships between economic and political actors, and how those power relationships and decisions affect the global population. This paper puts forward concepts that students should be taught in order to critique the neoclassical lens when considering how to address the issue of climate change. If environmental issues are taught completely separately from political and economic issues, and if they are framed only through traditional economic and environmental science framing, the social and feminist implications will be lost. This paper will present a variety of perspectives for educators to consider that expand on the social causes and implications of the issue as well as the values necessary to remedy it.

Political decisions influence which voices are heard in climate negotiations. Economic decisions influence how power is divided through market systems, upholding the preferences of those that can pay for goods and services and ignoring those that do not or cannot participate in the market. The inclusion of voices and the subsequent power they possess being derived from market interactions makes economics an inherently political discipline. The transboundary nature of climate change suggests that economics should be treated as a political discipline as decisions made about the economy will affect every human or other species that lives within it, even those that cannot directly participate in the market themselves. Social values and productive skills are taught in schools, and create the workforce and society that divides power and will inherit the planet. How educators address the political and economic roots and impacts of the climate crisis will determine how future generations will interact with economic and environmental systems.

The effects of climate change are already being felt, with the summer 2023 Arizona heat wave (NPR, 2023), coral bleaching in reefs around the world (Florida Keys National Marine Sanctuary, n.d.), and Arctic ice sheets melting at unprecedented rates (United States Environmental Protection Agency, 2023). Global temperatures have risen 1.3 degrees Celsius between 1990 and 2019 (Lindsey & Dahlman, n.d.). It is suggested that such a rise must remain below 1.5 degrees Celsius relative to the 1850-1900 average temperature to allow for the environment to recover and remain hospitable for humans, though the recovery could take up to a couple hundred years to get back to pre-industrial revolution levels (Moseman, 2023). The International Panel on Climate Change notes that “a warming greater than 1.5°C is therefore not geophysically unavoidable: whether it will occur depends on future rates of emission reductions,” (Allen, et al, 2018) Stopping the rise in global temperature and reducing emissions requires a global response, and while the planetary science of how that works already exists, the political and economic actions that allow for such changes are still up for debate, leading to the discussion of political economy policies.

Neoclassical economics is the global economic system currently in place. From the Bretton-Woods agreement and the creation of the General Agreement on Trades and Tariffs in 1944 to the Washington Consensus and the neoliberal order of development in the 1990s, neoclassical economic systems have been incorporated into the global system time and time again (Sheppard & Leitner, 2008). The neoclassical system claims to distribute resources through rationality, objectivity, and efficiency in market interactions (Brand-Correa, et al., 2022). It claims to leave values and power outside of the economic sphere, as economic decisions are focused on the individual household or firm, not the global aggregate. The emphasis of self-interest within markets and the attempt to separate economics from politics is short sighted, as economic decisions are inherently political. Decisions that are made with self-interest will still have effects on those outside of the market interaction. How those effects accumulate and are distributed among countries, regions, socioeconomic classes, and genders are the political implications of the economy. How market assumptions of self-interest, economic growth, and rationality impact the environment opens the space for a discussion of climate change.

How markets and economic theories place value within a society allows for differences in power between humans and the environment, men and women, and the rich and the poor. These power differences lead to environmental degradation, gender oppression, and economic inequality, which all have compounding social impacts such as environmental racism, gender inequality, and lack of provisioning for the environment. How students conceptualize intersectional issues such as climate change begins in the classroom with social justice teaching and a philosophical understanding of the logic of domination that compiles environmental oppression with more commonly discussed forms of oppression. Schools are responsible for shaping the way students engage with social, political, economic, and environmental systems, and whether those students perpetuate or disrupt oppressive value systems begins with an examination of what values are at the root of environmental and economic discussions.

Feminist Political Ecology

Feminist Political Ecology is an interdisciplinary theory that discusses the connections between gender, power, and the environment. When applied to economics, it can provide an understanding of how markets have assumptions that can undermine environmental progress because of value dualisms between productive and reproductive work, the public and private sphere, the society and the environment, and market and non-market actors. Market power is political power, and market power is not evenly spread. How power is created in markets through value dualisms and the ability to participate within the market is important in understanding how economic actions have created the climate crisis. FPE places the politics back into economic decisions to provide a comprehensive understanding of what political economy policies will do to a society, including the economy, the people, and the environment it exists within. FPE can be a good jumping off point for educators to create discussions of the overlapping issues surrounding climate change, gender, politics, and other related topics.

This paper provides background on the economic underpinnings of the climate crisis, and the political implications they have on society, using FPE as a lens to create an understanding of the intersectional aspects of the issue. Next, it will examine how gender, environment, and politics can be reframed to address the value shortcomings that exist within neoclassical economics, and how teaching for social justice can incorporate those values into currently used practices. Creating an understanding of climate change as a social justice issue in a classroom

setting can provide students with a better set of tools to navigate a rapidly changing climate and the implications those changes will have on them, their peers, and the global community.

Literature Review

To identify the values inherent in economic systems and create an understanding of their political implications, neoclassical economic models will be contrasted against Feminist Political Ecology. The foundational philosophy behind FPE is ecofeminism, which examines how patriarchal domination of women can be extended to domination over nature in social, political, and economic spheres (Lahar, 1991). Systems of oppression are used to create value dichotomies that present one group and superior and the other group as inferior (Warren, 1991). Capitalist systems place productivity and the public sphere above the environment and the private sphere. Patriarchal systems place masculinity ahead of femininity. If the environment and the private sphere is deemed feminine, it will be oppressed within the capitalist system, making the capitalist system inherently patriarchal (Warren, 1991).

FPE examines the tangible aspects of the value dualisms, finding the real-world application of ecofeminism. Real-world examples of the logic of domination over both women and nature present themselves frequently in neoclassical economics. The connection of specifically women and nature comes from ideas that women are naturalized (Warren, 1991). Work that is not economically productive and instead focuses on reproduction of life is viewed as more primitive and subsequently closer to nature (Lahar, 1991). With gender and environment being embedded together, women become a part of the physical conception of the world through typically feminine work such as care work and reproductive work in society (Phillips, 2016). For example, a bird will not go and trade stocks, a bird will get food for their young. In a capitalist system focused on efficiency and profit maximization, reproductive work is devalued as it is not viewed as efficient (Prügl, 2021). The gendered division of labor between roles men take versus roles that women take can explain how women are sorted into devalued reproductive roles which underpins the oppression of women.

Ecofeminist connections between women and nature also examine how nature is feminized. Nature is often viewed as life sustaining, nurturing, and reproductive. Consider the term “Mother Earth.” The connection of nature to the very feminine concept of mothering ties nature to women. Women’s work in reproductive roles, as demonstrated above, is often considered outside the economic sphere as it is not generating profits itself. Nature is also considered outside of the economic sphere unless it is in terms of resource inputs, disregarding its social importance for life as noted by neoclassical valuation techniques (Irving & Helin, 2018). If Western societies are comfortable with oppressing women in their reproductive, non-economic roles, and nature is closely associated with women and considered non-economic, then Western domination of nature is a natural extension of that patriarchal domination (Roach, 1991).

The naturalization of women and the feminization of nature show how patriarchal systems dominate both women and nature. Foundational ecofeminist philosopher Val Plumwood introduced the concept of dualisms as part of this domination. All dualistic pairs “create establishments of orders and classifications of the oppressor and the abused” (Irving & Helin, 2018, p. 267). Prominent to this discussion are human/nature, productive/reproductive, and masculine/feminine dualisms. In these sets, human, productive, and masculine are the dominant terms that are incorporated into Western society. Social, political, and economic systems are

human centered or anthropocentric, meaning nature is valued in terms of human use and interest. Production and material economic output is valued over reproduction and non-material well being (Tejani, 2019). Traits associated with masculinity such as rationality, objectivity, and efficiency are placed above feminine ones such as applying care, community, and provisioning (Prügl, 2021). Hierarchical dualisms are everywhere, and understanding the differences between the valued and devalued terms can help create an understanding of power structures, interactions, and systems of oppression.

Feminist Political Ecology & Ecocentrism

The perpetuation of value dualisms allows for continual division of power and subsequent domination over those in the undervalued half. Schools shape interhuman relations, social relations, and Earth-human relations through the value dualisms that are presented in classrooms (Li 2007). Presenting reproductive work that maintains the home, cares for the elderly, and allows for the continuation of society as a lesser alternative to a productive job outside the home perpetuates the productive/reproductive dualism. Suggesting that technocentric methods of environmental management can protect us from climate change reinforces the human/nature dualism as it continues to suggest that humans can dominate nature. These types of value dualisms need to be disrupted, and the framing for such begins in the classroom in an FPE understanding of the political economy of the environment.

When applying FPE to social and economic systems as they pertain to the environment, the primary element that must be recognized is ecocentrism. Ecocentrism focuses on natural systems as the primary actor in society, whereas anthropocentrism places people at the center. Ecocentrism promotes the idea that the value of the environment is for the sake of the environment, not relevant to humans, an idea that must be applied to the classroom. FPE critiques neoclassical systems because of their lack of ecocentrism, claiming that neoclassical economics is anthropocentric as resources and environments are valued in their relation to humans. Nature is protected with the purpose of maintaining its continual use and access by humans, instead of protecting it because it is the foundation of all life. Scholars have discussed the issues of anthropocentrism within environmental management, suggesting that if nature is valued only as it pertains to human extraction and use, then the good of humanity will always come before the needs of the environment because natural values for humans is centered before natural value for nature (Phillips, 2016). Such a hierarchy and system of domination will be unable to adequately protect the environment.

Systems that are ecocentric focus on having a healthy common pool of resources that are accessible and economic systems that are reciprocal. Having a healthy common implies that there is communal responsibility and management of resources for a community. As everyone in the community depends upon the commons, everyone in the community must protect the commons (Mies, 2014). This is often done with social norms that value taking resources only to satisfy a person's needs. From an FPE standpoint, a community that governs a common is multispecies, accounts for reproduction, and recognizes gendered struggles over land, forests, and water. Ensuring access for the entire communities takes away hierarchal systems that limit access to resources. Community responsibility over a common also ensures multiple voices are heard when making decisions for the common. Different people and different species need or want different things out of a common, and if it belonged just to one person it runs a higher risk of being overexploited for the gain of one individual actor, instead of mediated and balanced by a

community (Sato & Alarcón, 2019). Expanding on that, struggles over resources are gendered in a patriarchal society, and gender inequality can stem from privatizing commons as women frequently do not have enough power or influence over resource decisions (Rocheleau, 2015).

The other fundamental value of ecocentrism in social systems with regards to the environment is reciprocity or circularity. Systems that are reciprocal balance material production with reproduction, meaning the benefits, whether profits or material use, of resource extraction go back into the community they were extracted from (Ojeda, et al., 2022). Things taken from the earth are used with purpose, and the value from the resources extracted is kept within the community. The community and value aspect of reciprocity ensure that resources are maintained overtime in a similar manner to that of commons. Subsistence economies are good examples of reciprocal systems as resource extraction is balanced within a community to meet the needs of the people without overextending resource extraction and causing environmental harms (Berkes, 2012).

Feminist Political Ecology Versus Neoclassical Economics

FPE values are fundamentally different from the values in neoclassical economics that have created the climate problem in the first place. Economics is the study of decision making, examining how societies allocate scarce resources. Neoclassical economics attempts to allocate resources with open markets, free trade, and rational decision making focused on individual self-interest and efficiency. Within the context of the environment, these principles lead to values such as anthropocentrism, privatization, and continual economic growth which can undermine environmental sustainability in an economic system.

Environmental economics distinguishes policy options between the long-run and short-run. Long-run decisions and policies attempt to regulate impacts of a policy for generations to come. Short-run decisions and policies are those that can be felt immediately or within a single generation (Field & Field, 2006). Increasingly over time, and most economic decisions today, are being made in the short-run, with immediate or relatively near benefits. If a rational actor is making decisions to benefit themselves in the short run, pollution, biodiversity, and health of natural resources will be depleted as the negative impacts of economic actions does not affect these things in a quick manner. Stern suggests that market decisions reflect the interests of those that participate in them, and as future generations are unable to participate, their interests and needs are not properly accounted for (2022). If future humans are valued as less than current humans due to discounting, maintaining a clean and healthy environment for future generations will not be the rational decision to maximize individual utility in the short run.

The problem of overuse of short-term decisions compared to long-term decisions can be seen in the economic concept of discounting. Discounting follows the assumption that actors would rather use a resource today than wait and use it tomorrow or will make short-term decisions as outlined above and shows that money today or a resource today is worth more than the same resource in the future (Pearce & Warford, 1993). Therefore, actors value short-term actions and impacts higher than those in the future because their money and resources are more valuable now than in the future (Nelson, 2008). This can be applied to the value of any good, resource, object, and even actors. Current people are worth more now than they are in the future, just as resources are worth more now than they are in the future. This is a fundamental principle of neoclassical economics which leads to the undervaluation and implementation of environmentally sustainable practices. Environmentally sustainable practices often are more

expensive or require more expensive means of production from responsible labor and extraction costs and techniques and have long gestation periods before the benefits can be felt .If the value of the future planet is less than the current planet, those extracting natural resources and creating pollution do not have an incentive to do this in a sustainable way (Pearce & Warford, 1993).

Value of goods that are not typically traded in the market, such as the environment, are often determined through willingness to pay (Field & Field, 2006). The amount of money an economic actor is willing to pay to be close to a forest, to travel to a forest, or to save a forest creates the monetary value economists place on a natural resource. This does not account for the impacts environmental degradation will have on future economic interactions, on future generations, on human health, or the health and wellbeing of environmental systems on their own. Using markets to regulate the way resources are extracted from the environment, how pollution is distributed and expelled into the environment, and determining proper quantities of species and biodiversity suggests that the environment can be regulated by the economy (Phillips, 2016).

Assuming that the environment will behave in ways that can be regulated by the economy ignores the fact that the environment is what the economy exists within, not the other way around (Daly & Townsend, 1992). Using markets also allows for discount rates to be applied to the natural resources and in turn their health is devalued over time (Daly & Herman, 2010). The reduction in natural capital stocks, environmental health, and biodiversity cannot properly be valued in a market with the above mentioned methods because they miss value from people underrepresented by markets. Communities that do not participate in the global market, such as informal economies or subsistence economies, often place a higher value on the environment than formal or Western economies, and yet their value of the environment is not represented (Irving & Helin, 2018). Using willingness to pay as a method of valuation also disproportionately skews values for the rich, as lower-income people and households are not able to spend disposable income on the environment (Field & Field, 2006). In countries like the United States, systemic racism has joined economic inequality with racial inequality, and with low income households being more susceptible to environmental degradation while being ignored from pricing methods that determine resource health and distribution, the environment subjugation is also racial oppression (Thomas, 2022).

The negative impacts of economic activities that happen within a market transaction are seen as a cost. Negative impacts of economic transactions that occur to those that do not partake in the transaction are called negative externalities (Irving & Helin, 2018). An example of such would be when a person makes a car and another person buys the car, both people in the transaction are made better off but the pollution from making and driving the car have a negative impact on everyone else. Smog, litter, and water quality are all examples of negative environmental externalities. The solution to such externalities presented by neoclassical economists is the privatization of common goods, meaning ownership is assigned to common resources such as a forest or a lake, and those that oversee it are responsible for its management (Field & Field, 2006). However, this means that the land is now private, which excludes anyone previously relying on it from using it. It also means that if the owner does not want to protect the natural area, they have no incentive to

Another foundational element of an economic system is scale, which examines the size and flow of goods and services, examining where they come from and where they go when they are no longer able to be used. This can be examined by population multiplied by consumption or per capita resource use (Daly & Townsend, 1992). Scale is important when related to the concept

of economic growth, a neoclassical economic theory framed as a requirement for overall economic prosperity. This is measured in GDP, which suggests that a society must continue to produce new goods and services to be prosperous (Froyen, 2013). If the premise of an economy is based on exponential growth, it becomes fundamentally incompatible with the fixed system it is built within. Neoclassical theory attempts to regulate all its factors with optimal distribution from markets, which includes the environment as a sector as opposed to an intricate system that humans exist within. Consider the laws of thermodynamics as they relate to our planet that state that matter cannot be created or destroyed (Daly & Townsend, 1992). Economics in its definition acknowledges the finite nature of the planet by including the term scarcity. Creating an economic system upon that definition that is built to be exponentially growing creates a fundamental incompatibility between planetary boundaries and neoclassical economics (Jackson, 2021).

Concluding Thoughts: FPE & Ecocentrism in the Classroom

Using productivity, growth, and market efficiency as primary goals within an economic system undermines environmental sustainability in the long run, leading to environmental degradation. Presenting these values in early education upholds the value dualisms that accompany neoclassical foundations. Instructing students to focus on productive versus reproductive roles, objectivity versus subjectivity, and private affairs versus public upholds the value dualisms that have led to both social oppression of various groups and oppression of the environment (Li, 2007). Feminist theories claim that hierarchical systems of value and importance between different groups must be disrupted (Warren, 1991). Applying this to the classroom would suggest that the pursuit of progress and the emphasis on the public sphere cannot be separated and divided from reproductive roles and private sphere activity (Li, 2007). Promoting production without reproduction allows for the continual exploitation of natural systems and gendered work as value will not be properly assigned to regenerative and natural roles that allow for the environment and society to flourish.

Placing rationality and objectivity at the forefront of environmental management and environmental education suggests that technocentric solutions and proper market management will be successful in solving the climate crisis (Li, 2007). Examples of this include switching inputs in production processes and promoting markets that use less harmful resources to create sustainable economic development (Wichterich, 2015). Suggesting that humans can control and regulate the environment perpetuates human domination over nature and ignores the dangers of using human made markets to regulate non human made entities. This severs human ties with the earth as emphasis is placed on productivity instead of reciprocal systems that continue to place value back into the planet. Ecological health and wellbeing must instead be taught as the merging of productive and reproductive society that takes place in both the private and public spheres, and as a foundation to a healthy economy, not as a sector the economy can regulate.

Disrupting the value dualisms that separate private from public and nature from culture can be done through changing the emphasis placed on productivity, rationality, and objectivity within the classroom. In both the environment and society, production cannot happen without reproduction and culture cannot exist without nature (Warren 1991). Getting rid of the value dualism and presenting each side as a companion instead of an adversary (production and reproduction instead of production versus reproduction) can get rid of the gendered hierarchy that perpetuates the logic of domination over both women and the environment. This can give

students a more well rounded understanding of environmentally sustainable values that are necessary for long-term environmental wellbeing.

The FPE perspective suggests that climate crisis solutions and environmental policies must be ecocentric and focus on reciprocity and providing a healthy commons. These are fundamentally different from the values that exist within neoclassical economics. As mentioned above, the foundations of neoclassical economics undermine environmental prosperity and exclude provisions and inputs from those that cannot or do not participate within the market to the same extent as Western, wealthy actors. Not only does this create the foundations of the climate crisis but it also creates space for environmental injustice. Changing the values presented to school-age children to ones that align with an FPE perspective can challenge the value dualisms that exist within neoclassical economics and can disrupt the systems of oppression that accompany them. Helping teachers move away from viewing environmental solutions through the technocentric and neoclassical lens common in traditional framing can create a perspective for teaching climate change as the intersectional social justice issue that it is.

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